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ABSTRACT

This module and the associated activities are designed to assist the student teacher in recognizing and in implementing three different instructional strategies. The competencies to be acquired are in lecture-recitation, guided discussion, and inquiry. Readings and activities are directed in such a way as to assist students to understand the implications of various instructional behaviors employed in the classroom. The student in this module observes, listens, and participates in the classroom, in the field, and independently. (JD)

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COMPETENCY AREA:

INSTRUCTIONAL STRATEGIES

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SYRACUSE UNIVERSITY TEACHER CORPS
AUGUST 1973

Developer: James R. Johnson
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Module:

Competency Area:	Instructional Strategies
General Topic:	Lecture-recitation, guided discussion and inquiry (discovery)
Content Area:	None
Learning Mode:	1, 2, 3
Instructional Mode:	1, 2
Grade Level:	Not applicable
Situation:	Classroom, Independent, Field
Access Skill:	Observation, Listening, Participating
Approximate Time:	52 hours
Module Discription:	When a teacher operates in the classroom, he will find it necessary to utilize a variety of techniques and strategies which will facilitate student learning of the course objectives. It is therefore important that a student be able to implement various instructional behaviors as well as demonstrate some understanding of the benefits and disadvantages associated with each technique. This module and the associated activities is designed to assist the student in recognizing and in implementing four different instructional strategies. Readings and activities will be directed in such a way as to assist students to understand the implications of various instructional behaviors employed in the classroom. Students will see demonstrations of various strategies and have the opportunity to practice implementation both in mini-lessons and in the schools as they proceed through the three module sequence on Instructional Strategies.

Concepts

Two Views of Learning

C-1 Teaching is an interactive process--an engagement or encounter between the teacher and his pupils.

C-2 Each child brings a certain entering set background knowledge, ideas and values which affect his response to teaching behaviors.

C-3 Successful teaching and learning is usually linked to the degree in which the teacher has been able to preassess or diagnose the learner's entering behaviors.

C-4 A student's readiness to learn, as determined by previous experience, maturation levels, and the like, enhances or hampers his ability to learn.

C-5 Learning takes place more easily when the learning tasks are adjusted to individual levels of maturity and other aspects of readiness.

C-6 Students learn better and more easily that which conforms to their previous attitudes or learning.

C-7 Two views of classroom learning, reception learning and discovery--inquiry learning, both have contributions to make in planning for the successful instructional encounter.

C-8 Reception learning emphasizes the organizational properties of learning tasks (such as a reading assignment) and seeks to reveal the conditions under which masses of educational information are optimally processed and retained by learners.

C-9 Discovery-inquiry learning is oriented toward providing pupils with experiences of inquiring, of going through processes similar to a scientist but more structured and directed to improve the chances of a pupil meeting success rather than frustration.

C-10 Reception oriented instructional behaviors are essentially concerned with the transmission of subject matter to the learner.

C-11 Reception oriented instructional strategies must be related to the child's existing cognitive structure and experiences if it is to be effective.

C-12 Discovery inquiry learning assumes that learner involvement and active participation is an indispensable prerequisite for learning.

C-13 Discovery inquiry learning leads to a change in the teachers role from the authoritative source of information to the mediator between the learner and the phenomena about which he is to learn.

C-14 Transfer of learning best occurs if the learner discovers relationships for himself and has the opportunity to apply principles of relationships in a variety of tasks.

C-15 Concept formation is helped by having concepts presented in varied and specific situations followed by experience in trying the concepts in addition different situations.

C-16 Freedom to make mistakes allows students to explore and test their thinking. Asking questions that stimulate thinking and imagination also encourages individual thinking and problem solving.

C-17 Selecting an appropriate Instructional Strategy must first proceed from the objective for the lesson or unit.

C-18 Reception oriented instructional strategies are most commonly associated with objectives which stress knowledge and comprehension level learning.

C-19 Inquiry oriented instructional strategies are most commonly associated with objectives which are application level and above in Bloom's taxonomy.

C-20 Reception oriented instructional behaviors are marked by high quantities' of teacher verbal behavior and convergent or memory level questions.

C-21 Inquiry-discovery instructional behaviors are marked by high quantities of student verbal behavior and divergent, evaluative or value-clarifying teacher questions.

C-22 Six distinctive instructional strategies which a teacher should be about to execute in the classroom include: mediated instruction, lecture-recitation, teacher led discussion, guided discovery lesson, inquiry, and open exploration or brainstorming.

Teaching for Inquiry Learning

C-23 There are a wide variety of inquiry models which can be used to describe problem solving or reflective thinking.

C-24 Inquiry depends upon rational processes and the search for, analysis of, and utilization of a wide variety of data sources.

C-25 The nature of knowledge and the rapid growth of knowledge suggests that the recall of facts is only a minute part of "knowing" and "doing."

C-26 Those people who ask questions that they think they have the "correct answers" for, are not engaging in inquiry.

On Developing and Using "Springboards," "Vehicles," and "Motivators":

C-27 Springboards focus student attention and lead to the exploration of a wide variety of alternatives.

C-28 Springboards initiate and sustain student inquiry, valuing and feeling.

C-29 A wide variety of materials and activities can be used for springboards and "discovery episodes."

C-30 Both students and teacher can collect or create springboards for inquiry.

C-31 Inquiry involves inductive and deductive learning experiences.

C-32 Subject matter and relevant data are essential to effective inquiry.

C-33 Teachers need to encourage and reward students for creative thinking, inquiry, valuing and feeling.

C-34 Teachers must be models of inquiry processes and attitudes for students.

C-35 Inquiry does not involve closure at the end of each and every class period.

C-36 Inquiry often involves a wide variety of data (e.g., charts, stories, poems, pictures) from a multitude of disciplines (e.g., biology, ecology, history, government).

Questioning Behaviors

C-37 Questions may be used to lead the student step-by-step to think about his experience.

C-38 Questions can be used to sample respondents' understanding of, or ability to make application of, concepts.

C-39 There is a system which classifies questions into four categories:

a. Recall: narrow questions calling for facts or other recall items and involving rote memory. They are at the lowest intellectual level. (Example: What is the name of the mountain range separating Europe and Asia in the north?)

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[1] Items C-37 to C-52 were extracted from A Behavioral Approach to Teaching by H. Baird, W. D. Belt, L. Holder, and C. Webb. Dubuque, Iowa: W.C. Brown, 1972. Pp. 171-172.

b. Convergent: higher-than lowest level questions calling for the analysis and integration of given or remembered data. Problem-solving and reasoning are often involved in this category. The answers involved may be predictable but the task requires application of two or more recall items. (Example: What in the location of these mountains accounts for their importance?)

c. Divergent: questions that call for answers which are creative and imaginative and not empirically provable. Many different answers may be correct, and therefore, acceptable. (Example: How might the lives of the people in Russian and the Baltic countries be different if the mountains were not there?)

d. Value: Questions that deal with matters of value judgments and choice. These call for an opinion. (Example: Which country would you prefer to live in? Why?)

C-40 Questions may be classified as either broad or narrow.

a. Narrow questions are those that place limiting restrictions on the respondent within the type of behavior called for. For example, "What are the three steps..." The word "three" makes this question a narrow question.

b. Broad questions are those which do not restrict the student's answers even with recall questions. An example would be, "What are the steps..." The question does not help the respondent "avoid" an incorrect response.

C-41 Questions that can be answered by "yes" or "no" are nearly always recall questions.

C-42 The behavior of the teacher when asking questions should not follow a pattern readily and easily predictable by the respondents.

C-43 Questions stated to the group tend to cause all learners to prepare to respond.

C-44 Reinforcement of a response will tend to encourage the respondent to get involved more.

C-45 Redirecting of questions is a means of involving more than one respondent in fulfilling the task prescribed by a question.

C-46 Redirecting of questions is most effective when immediate reinforcement is withheld from the first person to respond to a question. However, reinforcement should eventually be given.

C-47 Temporarily withholding reinforcement, combined with redirecting questions, can help involve more respondents with the task prescribed by a question.

C-48 Rewording of questions is the practice of restating a question differently than it was phrased when first stated.

C-49 Rewording of questions is a pattern to be avoided for four reasons:

a. It does not condition the person asking questions to formulate good questions the first time.

b. It tends to promote the asking of multiple questions.

c. Too often the last question posed prescribes a lower level of cognitive or intellectual performance. All too often it prescribes recall behavior.

d. It tends to encourage the person asking the questions to end up answering them, too.

C-50 Multiple questions are a series of questions posing several related tasks so closely phrased that the respondent does not know whether or not he is to respond to one or all of them.

C-51 Leading and cueing is the behavior of helping the respondent get a correct answer by responding to cues given by the person asking the question rather than by the respondent performing the task prescribed by the question, unassisted.

C-52 The way in which a question is stated in terms of the tone of voice, inflection, and stress, can provide leading and cueing to a respondent.

C-53 Inquiry questions are open-ended and never call for a single correct response.

C-54 Questions leading to student value positions and judgments ask students to state what should or ought to be and what is best, good or worthwhile (or worst, bad or worthless).

C-55 Probing questions are essential to effective inquiry. They ask students to explain their own ideas, positions, opinions, and hypotheses and give good reasons for them.

C-56 Questions asking about student experiences, values, feelings, emotions and creative ideas are important in inquiry.

C-57 Inquiry teachers attempt to decrease the time they spend talking and asking questions and increase the time students are discussing, asking questions, giving evidence, collecting information and actively participating in a variety of activities.

C-58 Inquiry questions ask students to go beyond the immediate data and include other examples, personal experiences, creative ideas, speculations, value judgments, other sources of information, personal meaning, feelings and values, predictions, explanations, evidence and other relevant contributions.

Competencies

Below are listed competencies required of each student by the end of his program. Accompanying the competency statements are checklists which will be used to assess mastery of the stated competencies.

1. During the experience the preservice teacher will demonstrate his ability to utilize lecture-recitation as a teaching strategy for a minimum of one class period. The performance of this objective will be evaluated with reference to the following criteria which are further specified on the "Lecture-Recitation Performance Record": (1) use of pre-assessment devices, (2) logical order of content development, (3) arousing interest, (4) cognitive linking, (5) cueing, (6) clarity, (7) use of illustrations and examples, (8) variation of stimulus and (9) closure.

Given a lecture during the field experience and having tape recorded the lecture, the preservice teacher will be able to provide evidence of this competency by submitting (1) the tape and (2) a completed Flanders' matrix on the lesson which reflect the following criteria for lecture-recitation behaviors:

a. A computed ID ratio of less than .5.

b. Direct teaching behaviors (categories #5 and #6) accounting for 60 to 80 percent of the total behavior recorded.

c. Indirect teaching behaviors accounting for 15 to 35 percent of the total teaching behaviors recorded.

Lecture-Recitation Checklist

	Yes	No	Needs Improvement
Preassessment			
1. Did the teacher use an oral method to determine the entering behaviors of the students, i.e. ask questions?			
2. Did the teacher use a written method to determine the entering behaviors of the students, i.e. a questionnaire or pretest?			
Logical Organization of Lesson Development			
1. The teacher allotted adequate time for the lesson			
2. The teacher explained the purposes of the lesson, i.e. defined the problem under discussion			
3. A logical order of content organization was apparent in the presentation, i.e. the content was inductively treated			
4. The key concepts of the lesson were clearly and concisely presented			
5. The key concepts of the lesson were clearly related to previous concepts familiar to the students			
Motivation			
1. The teacher uses a variety of stimulus examples to accommodate the interests and abilities of the class			
2. The teacher maintained interest using humor, puns, anecdotes, poems and stories			
Cognitive Linking			
1. The relationship between the introduction and the body of the lesson was clear			
2. Within the body of the lesson there was a logical development of ideas			
3. The teacher used a smooth transition from body to closure of the lesson			
Cueing			
1. The teacher used appropriate audiovisual aids to develop the lesson			
2. The teacher used descriptive language			
3. The teacher suggested several exploratory opportunities which an interested student may have chosen to pursue independently			
4. The teacher developed analogies between new concepts and ideas and those more familiar to the students			

	Yes	No	Needs Improvement
5. The teacher developed selected problematic situations to encourage student thinking			
6. The teacher supplied advanced organizers to assist the students in the new learning			
Clarity			
1. The teacher speaks clearly			
2. The teacher explained ideas and/or presented materials in language which was easily understood by the students			
Stimulus Variation			
1. The teacher moves about the classroom as he speaks . .			
2. The teacher gives gestures to help convey additional meaning to his verbal behaviors			
3. The teacher permits students to have time to think about and process the ideas he is speaking about . . .			
4. The teacher uses visual material in such a way that the students must look as well as listen in order to learn			
Closure			
1. The teacher provides for consolidation of concepts before moving to subsequent learning opportunities . .			
2. The teacher reviews major ideas and concepts throughout the lesson			
3. The teacher develops connection between previously learned material and newly learned material			
4. The teacher or one of the students provides a final summary of the major points raised in the lesson . . .			

2. The pre-service teacher will be able to plan and demonstrate a guided discussion lesson using the entire class at least once during his field experience. He will be evaluated according to the following criteria:

a. 75% of the class members are involved in the discussion.

b. As he guides the discussion the teacher exhibits behaviors to utilize and develop student ideas and comments such that this behavior would be coded as #3 on the Flanders Scale.

c. Supportive atmosphere which encourages student participation is developed by student teacher through verbal and non-verbal reinforcement techniques.

d. Teacher uses verbal intervention in the discussion to sustain class involvement while the group moves toward the teacher's anticipated outcome.

e. Teacher employs a range of questions which include comprehension, application, analysis, synthesis and probing.

f. Student talk accounts for a minimum of 40% of the total verbal behavior in the classroom.

g. Discussion is terminated with a summary, generalization or conclusion of what the group has learned.

Given a guided discussion lesson, the pre-service teacher will be able to present evidence or exhibit behaviors which account for his use of the following principles in planning and developing the lesson. The teacher should be able to explain why any of these principles were not operationalized in his lesson.

a. All members of the class should have a common understanding of the goals of the discussion in which they are participating.

b. The class should have an opportunity to develop procedures best suited to the achievement of those goals.

c. Class members should have prepared for the discussion through outside reading or other activities.

d. The instructor and class members should recognize potential problems in class discussions and seek to utilize strategies to avoid these problems, i.e., what about people who don't participate?

e. All or most members of the class should share or have the opportunity to share in the discussion task.

f. The group should plan and utilize effective evaluation procedures which help them to know how effectively they worked toward the achievement of the goal.

	Excellent	Acceptable	Needs Improvement
1. 75% of class members involved in discussion.			
2. As he guides the discussion the teacher exhibits behaviors to utilize and develop student ideas and comments such that this behavior would be coded #3 on the Flander's scale.			
3. Supportive atmosphere which encourages student participation is developed by student teacher through verbal and non-verbal reinforcement techniques (verbal equals 1, 2, 3, on Flander's scale).			
4. Teacher uses verbal intervention in the discussion to sustain class involvement while the group moves toward the teacher's anticipated outcome.			
5. Teacher employs a range of questions which includes comprehension, application, analysis, synthesis and probing.			
6. Student talk accounts for a minimum of 40% of the total verbal behavior in the classroom.			
7. Discussion is terminated with a summary, generalization or conclusion of what has transpired during discussion.			

3. The pre-service teacher will be able to demonstrate Inquiry Behaviors the purposes of which are to lead to student behaviors in each of the following categories: attend, collect data, organize data, state hypothesis, test hypothesis, revise hypothesis and application. The pre-service teacher will perform these behaviors for an instructional objective he or she has developed which deals with a concept or principle to be learned or a problem to solve. The student teacher will reach criterion if he or she scores a total of ____ points or more from the observation form which is presented below. The student teacher must score at least a "2" in each category in addition to the total of points needed.

Student Inquiry Sheet

ATTENDING	Student is looking at teacher or at media, etc. He responds to questions.
COLLECT DATA	Student sees examples, looks at several data sources.
ORGANIZES DATA	Student can see differences and similarities among the examples in the data sampled.
ANALYZE DATA AND STATE HYPOTHESIS	Student makes a statement about the relationships, cause and effect (or other) between elements in the data which he has sampled.
TEST HYPOTHESIS	Student tests the validity of his statement by looking at new data, more examples, etc. He must then decide if this relationship holds in all cases sampled.
REVISE HYPOTHESIS	Student changes his statement on newly sampled data, if necessary. If not, he confirms his hypothesis.

Student Behaviors	Teacher Behaviors	Teaching Behaviors for this Category: DID NOT OCCUR AT ALL (1)	DID OCCUR TO LIMITED EXTENT (2)	DID OCCUR AND WERE SUBSTANTIAL (3)
ATTEND	Presents springboard, asks questions of analysis level or above, reinforces student attempts to define problem.			
COLLECT DATA	Asks questions to encourage collecting of data, asks questions to encourage doing so for several data sources.			
ORGANIZE DATA	Asks questions about patterns, similarities, etc. in the sampled data (focusing), questions which encourage the accomplishment of the above.			
ANALYZE DATA AND STATE HYPOTHESIS	Asks questions which call for the statement of a relationship in the data sampled, accepts attempts at establishing patterns and relationships but does not recognize truth.			
TEST HYPOTHESIS	Asks questions which encourage the student to realize that he has only seen limited data, "How does one know if hypothesis is valid?" Encourages through questioning that new data to be sampled should come from a variety of sources, covering a wide variety of attributes of the concept, etc.			

Student Behaviors	Teacher Behaviors	Teaching Behaviors for this Category: DID NOT OCCUR AT ALL (1)	DID OCCUR TO LIMITED EXTENT (2)	DID OCCUR AND WERE SUBSTANTIAL (3)
REVISE HYPOTHESIS	Asks questions about the newly sampled data--"Did your hypothesis hold in all cases? What is different about those cases in which the hypothesis did not hold? What can you say about your original hypothesis?"			
APPLICATION AND RELATING TO COGNITIVE STRUCTURE	Depending on type of learning involved: Fact - Just restate it, see if students can recall it, point out how it relates to other facts they should know. Concept - Restate concept with attributes, asks students to restate it in their own words, asks students to discriminate between examples and non-examples, asks students to generate new examples, points out how this concept relates to others they should know and shows how it may relate with other concepts to form principles. Principle - Restate principle stressing the relationship between concepts, have students restate principle in their own words, have students discriminate between examples and non-examples of the application of the principle, have students apply the principle in new cases, relate this principle to others they may know, show how this principle is involved in a higher order principle and/or how it can be used in problem solving.			

(Competencies 4a, b, and c may be satisfied in relation to completion of competencies 1, 2, and 3 or as a separate exercise stressing questioning behavior above.)

4a. Given a performance objective which requires a lecture-recitation instructional strategy, the preservice teacher will be evaluated with respect to the following criteria in his use of questioning behaviors:

a. Use of rhetorical questions.

b. Use of questions to check level of student understanding.

c. Use of questions to determine the desirable pace for the lecture.

d. Use of questions which are usually categorized in the knowledge or comprehension categories of Bloom's hierarchy.

e. Restricted or minimal use of questions above comprehension level.

f. 80% of total teacher verbal behavior which would be coded as "lecturing (5)" or "asks questions (4)" on Flander's System of Interaction Analysis.

4b. Given a performance objective which requires a guided discussion instructional strategy, the preservice teacher will be evaluated with respect to his ability to utilize the following criteria in demonstrating his questioning abilities:

a. Involvement of 70% of students in a large group (25 to 30 pupils).

b. 75% of questions asked could be coded in the comprehension, application and analysis levels of Bloom's hierarchy.

c. Teacher uses role and verbal behaviors (especially questions) to sustain the group effort.

d. Teacher uses questions to direct group to key concepts and ideas.

e. Uses questions to summarize or bring closure to key points of lesson.

4c. Given a performance objective which requires an inquiry-discovery instructional strategy, the pre-service teacher will be evaluated with respect to the following criteria in the use of his questioning skills in developing the strategy:

a. Uses role to ask questions which facilitate thinking rather than terminate it as with knowledge level questions.

b. Asks few "aborted" questions.

c. Asks many questions which probe.

d. Asks questions which develop a student idea.

e. Asks open-ended questions, i.e., divergent synthesis, evaluation and value-clarifying questions.

Teacher's Questioning Behavior Checklist

This checklist is designed to assist an observer to collect data and evaluate a teacher's performance in questioning in the classroom. As an advanced organizer to account for the nature and focus of this instrument it may be desirable to specify some of the assumptions with reference to teacher questioning which are being made:

1. A teacher has a great deal of control over the level of student thinking by the nature of the questions he asks.

2. High-level thought processes by a pupil tend to be preceded by a teacher-pupil interaction in which the teacher raised a question requiring a high level of cognitive processing.

3. Varying instructional strategies such as lecture-recitation, inquiry-discovery and guided discussion require different kinds of questioning behavior.

4. The nature of the performance objective and the instructional strategy selected by the teacher will influence and control the kinds of questioning behavior an observer might expect to see.

5. During the development of any unit a teacher should find the opportunity to ask questions at all levels of cognition, i.e. Bloom's categories.

6. Questioning behaviors may be used for a variety of functions beyond checking student understanding. It is important that a teacher become skilled in using questions in the following ways: to arouse interest, to evaluate student preparation, to diagnose student's strengths and weaknesses with respect to the unit about to be taught, to review or summarize lessons, to encourage discussions, to develop high level thinking in the students, to direct students in new or alternative directions, to build a student's self-concept, to assist pupils to see applications for previously learned concepts and to assess success in attaining objectives.

Teacher's Questioning Behavior Checklist

Categories of Questions Observed	Frequency Tally	Total
Knowledge-Memory		
Convergent Thinking		
Divergent Thinking		
Evaluative Thinking		
Value-clarifying		
Probing		
Rhetorical		
Aborted		
Student initiated Questions		

Questions to consider in counseling:

1. According to the data you collected, were the questions asked by the teacher appropriate to the cognitive level of behavior required or implied in his objective(s)?

2. Were the kinds of questions asked appropriate to the instructional strategy the teacher believed himself to be using, i.e. did he use mostly low cognitive questions to accompany a lecture?

3. Were the questions clearly phrased and worded in such a manner that very few questions failed to generate some student response, i.e. few questions were categorized as "aborted".

4. How many student initiated questions were observed? How does the teacher react to student questions? As a threat or as an indication that his instructional strategy has been successful in promoting thinking?

5. Is the distribution of questions by category what one might reasonably expect to find given the objective and strategy selected?

6. How might the student's questioning behavior be improved?

Objectives

Terminal Objective

01. Given a selected topic, idea or series of relationships, the student will present a 15 minute mini-lesson in which he initiates an inquiry-discovery unit. He will utilize behaviors which are conducive to inquiry learning. This will be accomplished by completing the following tasks and demonstrating the indicated behaviors:

    a. Present the instructor with a detailed lesson plan for three to five class days in which the student plans to exhibit the following instructional strategies: inquiry, guided discussion, and lecture-recitation.

    b. Exhibits teaching behaviors the majority of which would be categorized as "Indirect Influence" on the Flanders' System. (Lecturing will be kept at a minimum and no behaviors which may be coded as "Giving Directions" or "Criticizing" will be exhibited."

    c. Asks questions which stress high cognitive operations, i.e., questions which may be categorized as convergent thinking, divergent thinking, evaluative thinking, and probing or value-clarifying questions.

    d. Lists three vehicles which may be used to initiate inquiry learning on the topic chosen. (If the vehicle is commercially available, the student will provide full biographical data.)

    e. Lists and describes two data sources which students will be using during the unit.

    f. Lists ten questions which the teacher expects to ask in order to promote inquiry learning and thinking in the class. The questions will be coded as to the cognitive operation which the teacher expects to promote by asking them.

    g. Lists two hypotheses which students might be expected to generate in the lesson.

Enabling Objective

01. Given class presentations and discussion of Flanders' Interaction Analysis System, the student will describe four instructional strategies in a paragraph. The descriptions will focus on both student and teacher role behaviors. The student will use the categories in Flanders' System to describe the instructional strategies.

02. Given a reading on two views of classroom learning, the student will be able to list three assumptions which a teacher makes when he plans to use the following instructional forms in his classrooms: discovery-inquiry learning and reception learning.

03. Given the following instructional strategies: lecture recitation, guided discussion, and inquiry-discovery, and a topic in your subject matter concentration, the student will write one performance objective and describe one classroom activity which would be likely to appear in the lesson plan of a teacher using each strategy.

04. Given at least three models of inquiry, the student will select one model and explain each step in the process. He will refer both to teacher and student behaviors and cite specific examples of these behaviors where possible.

05. Given several statements (15-25) which include facts, generalizations, concepts, and value positions, the student will be able to classify each item as to its type. This will be done with 90% accuracy.

06. Given an example of a vehicle, the student will state in his own words, a definition of this concept as it relates to inquiry teaching. The student will suggest two examples of vehicle which might be used to teach an inquiry lesson in his subject matter area.

07. Given a list of possible topics for inquiry in various subject matter fields, the student will select one topic and identify and discuss at least five materials, activities, or media selections that could be employed as vehicles for student inquiry. (This may be pursued as a classroom activity.)

08. Given a list of topics chosen from various subject matter fields, the student will select one topic and locate two different data sources which he would plan to utilize in teaching an inquiry lesson on the topic. The student will be able to describe how that data would be utilized in the lesson. (This may be pursued as a class activity.) Data sources will be judged as to their accessibility, appropriateness as to student ability levels and as to their motivational potential.

09. Given a list of instructional questions, the preservice teacher will be able to classify these questions according to the following kinds of thinking which are required of the student: cognitive-memory, convergent thinking, divergent thinking, evaluative thinking, and value clarifying or affective thinking (85%).

010. Given one or more questions in a specified mode of thinking, the pre-service teacher will be able to rewrite a similar or related question using the other four modes of thinking. (85%)

011. Given a list of poorly phrased questions, the pre-service teacher will be able to classify the questions according to the dominant source of their faulty construction. (85%)

012. Given a list of poorly phrased questions, the pre-service teacher will be able to rewrite the questions improving upon the phrasing in each case. In addition, the student will be required to specify the nature of the error in each case. (85%)

013. Given a topic of his choice and any learning material which he selects from which to teach a brief lesson to students, the pre-service teacher will be able to develop a list of at least 12 questions which he would ask to develop the topic or concept. Each of the following categories of thinking are expected to be represented in the list of questions: cognitive-memory, convergent thinking, divergent thinking, evaluative thinking and valuing or affective thinking. (85%)

014. Given selected readings the pre-service teacher will be able to list and briefly explain eight (8) different uses of questioning strategies in the classroom. At least seven uses are required to meet criterion performance level.

Pre-Test

I. Looking at two views of classroom learning: reception and discovery-inquiry

01. Given class presentations and discussion of Flanders' Interaction Analysis System (see MEO_1), the student will describe four instructional strategies in a paragraph. The descriptions will focus on both student and teacher role behaviors. Wherever possible the student will use the categories of Flanders' System to describe the instructional strategies.

(1.)

(2.)

(3.)

(4.)

02. Given a reading on two views of classroom learning the student will be able to list 3 assumptions which a teacher makes when he plans to use the following instructional forms in his classroom: discovery-inquiry learning and reception learning.

Discovery-Inquiry Learning

(1.)

(2.)

(3.)

Reception Learning

(1.)

(2.)

(3.)

03. Given the following instructional strategies: lecture recitation, guided discussion, and inquiry-discovery, and a topic in your subject matter concentration, the student will write one performance objective and describe one classroom activity which would be likely to appear in the lesson plan of a teacher using each strategy.

Performance objective: _____

_____

_____

Classroom Activity _____

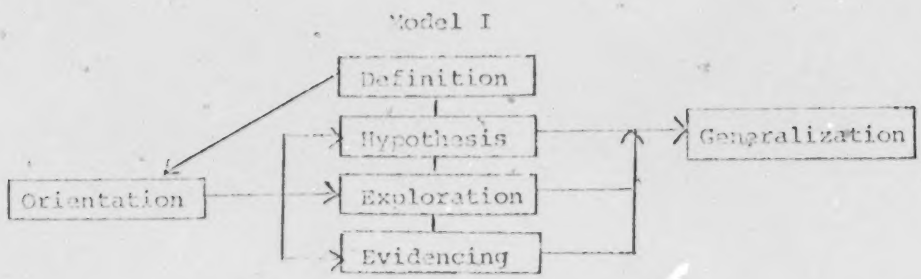
_____

_____

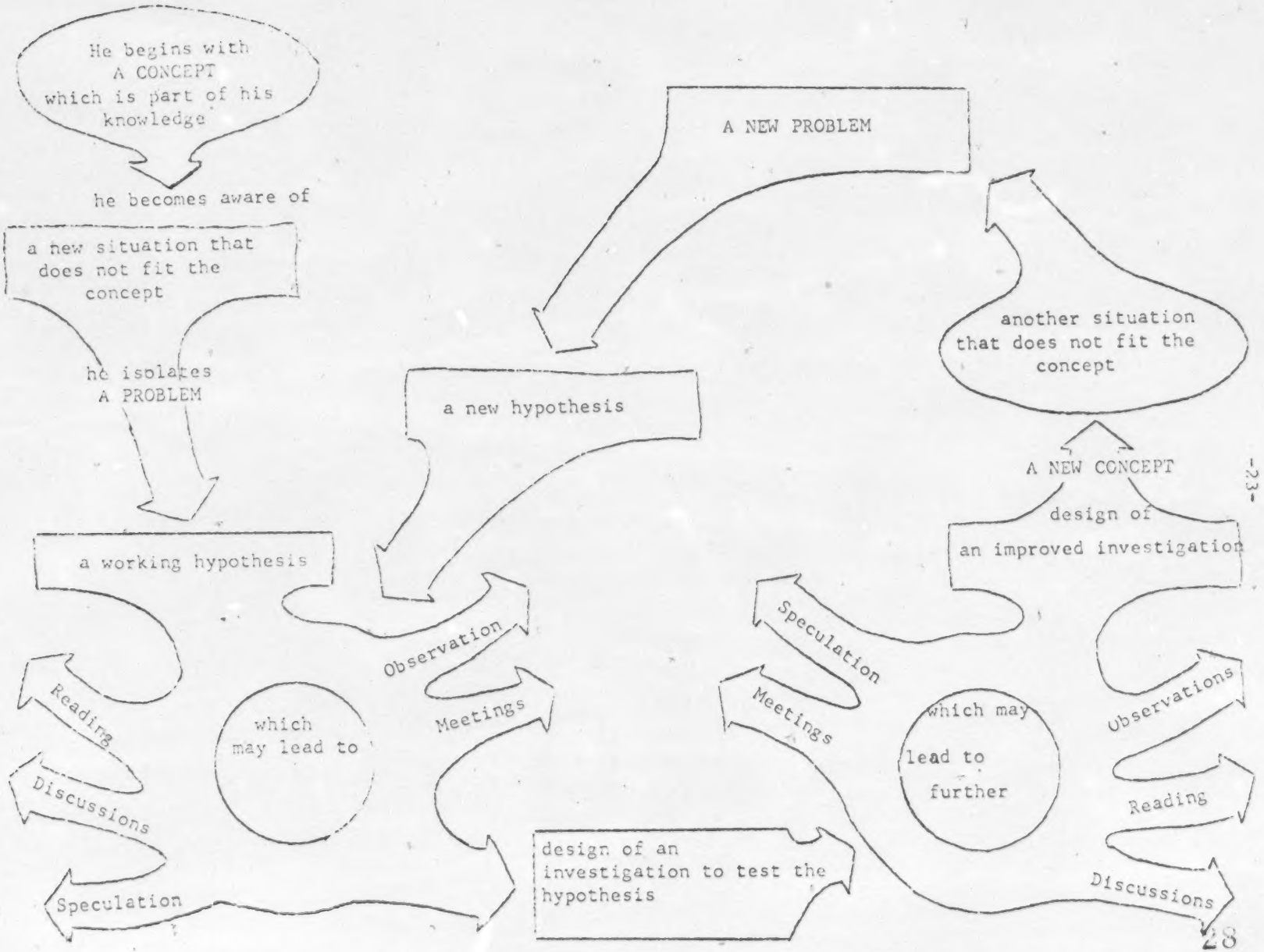
Teaching for Inquiry

04. Given at least three inquiry models, the student will select one model and explain each step in the process. He will refer both to teacher and student behaviors and cite specific examples of these behaviors where possible.

MODEL ONE

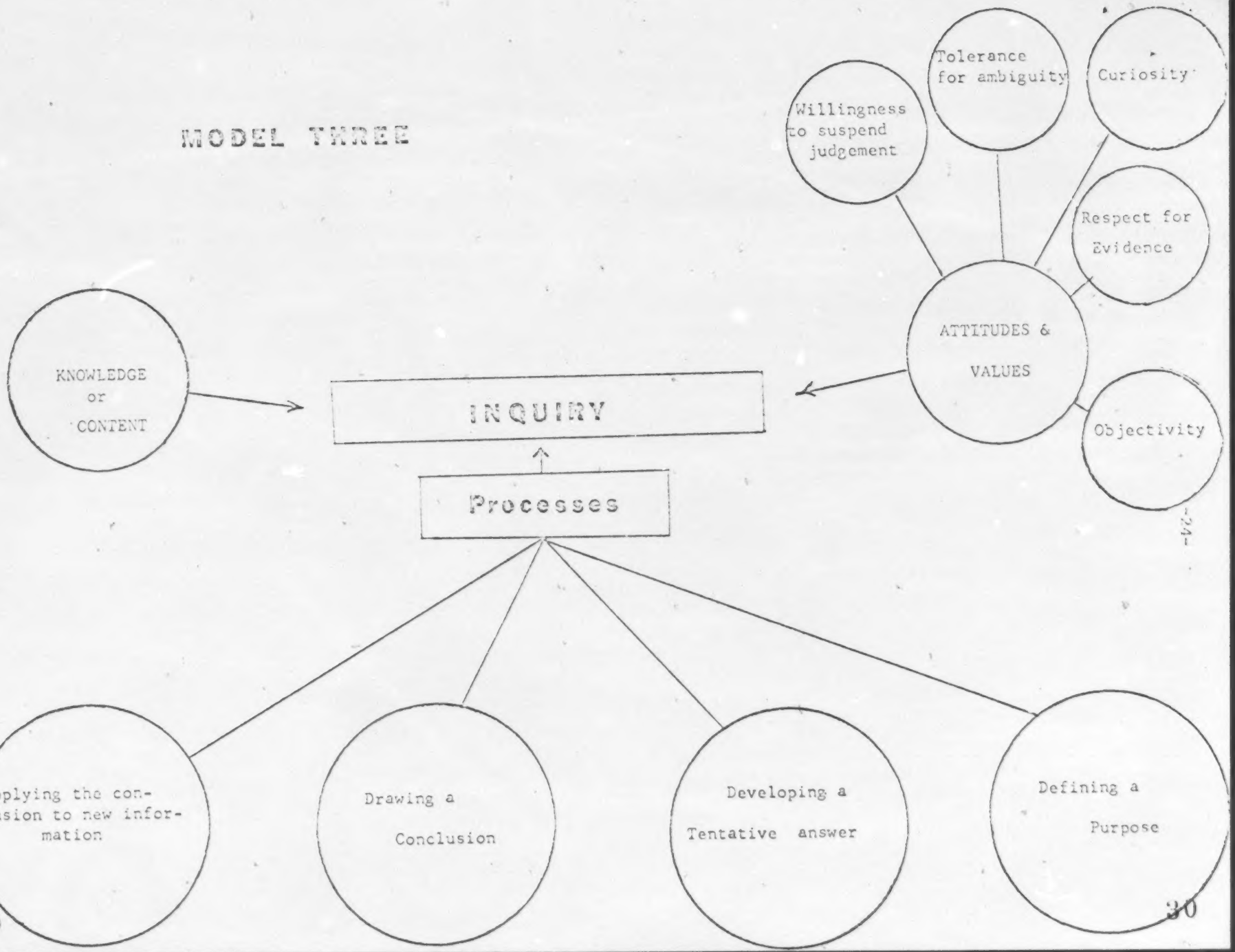


MODEL TWO


He begins with
A CONCEPT
which is part of his
knowledge
he becomes aware of
a new situation that
does not fit the
concept
he isolates
A PROBLEM
a working hypothesis
Reading
Discussions
Speculation
which
may lead to
Observation
Meetings
a new hypothesis
design of an
investigation to test the
hypothesis
A NEW PROBLEM
another situation
that does not fit the
concept
A NEW CONCEPT
design of
an improved investigation
Speculation
Meetings
which may
lead to
further
Observations
Reading
Discussions

-23-

MODEL THREE


Willingness to suspend judgement
Tolerance for ambiguity
Curiosity
Respect for Evidence
ATTITUDES & VALUES
Objectivity
KNOWLEDGE or CONTENT
INQUIRY
Processes
Applying the conclusion to new information
Drawing a Conclusion
Developing a Tentative answer
Defining a Purpose

04. (continued)

In the space allotted below identify what you believe to be the major steps in the Inquiry Process. Refer to at least five steps. You may find the form provided helpful. Cite an example of

INQUIRY OPERATION	TEACHER AND STUDENT BEHAVIORS
1.	
2.	
3.	
4.	
5.	

05. Given several statements which include facts generalizations, concepts , and value positions, the student will be able to classify each item as to its type. This will be accomplished with 90% accuracy.

Below is a list of statements selected from the content of the four basic disciplines. Some are facts, other are concepts, generalizations or value positions. In the blank space preceding each statement mark the appropriate letter.

Mark 1-- if the statement is a fact.
Mark 2-- if the statement is a concept.
Mark 3-- if the statement is a generalization.
Mark 4-- if the statement is a value position.

1. _____ Man can use his technology to modify his environment.

2. _____ There are three basic ways to begin verb strings: the primary auxiliaries, other auxiliaries and combinations.

3. _____ Autobiographies are books in which the writer tells the story of his life.

4. _____ Long haired people are not patriotic.

5. _____ Photosynthesis

6. _____ If every member of a set A is a member of a set B, then A is a subset of B.

7. _____ In most societies the role of mother is subservient to that of the husband.

8. _____ Edgar Allan Poe's most important and beautiful poem is "The Raven."

9. _____ A modern day scientist should have little difficulty in reconciling the theory of evolution and the origin of man recounted in The Old Testament of The Bible.

10. _____ Hybrid plants are formed when pure dominant strain is crossed with a pure recessive strain.

11. _____ $(3x2)^2 = 3^2 \times 2^2$

12. _____ Boston is on the Charles River.

13. _____ Ishmael is the narrator in Melville's Moby Dick.

14. _____ The story of Prometheus is an example of a myth.

15. _____ The ratio of one number to another is the quotient when the first number is divided by the second.

16. _____ The study of symbolic logic is absolutely necessary if one is to understand algebra and geometry.

17. _____ Change is a neutral process; it may progress or decline.

18. _____ Culture

19. _____ Bachelors should not pay school taxes.

20. _____ Combustion requires the presence of oxygen.

21. _____ $e = mc^2$

22. _____ Desert economies are always agricultural.

23. _____ In writing a "metaphor"is more powerful than a "simile."

24. _____ As societies become more technologically advanced, fewer people are actively involved in religion.

25. _____ The region in which one has been born and raised has a strong influence on his dialect.

26. _____ Lines which are truly parallel will never meet.

27. _____ Loci

28. _____ Mark Twain wrote "The Celebrated Jumping Frog of Calaverous County."

29. _____ Shakespere has had more impact on the words in the English languange than any single individual.

30. _____ Congruent line segments have the same length.

31. _____ America has the most advanced culture in the world.

32. _____ Colored people are lazy and no good.

33. _____ If "a" and "b" denote whole numbers, then $a \times b = b \times a$.

34. _____ Phoneme

35. _____ "Doorknob" is an example of a compound word.

36. _____ In the United States there are 120 doctors per 100,000 inhabitants.

37. _____ Where man lives geographically determines how he makes his living.

38. _____ A mutation is a new characteristic that can be inherited and it is caused by some change in a gene.

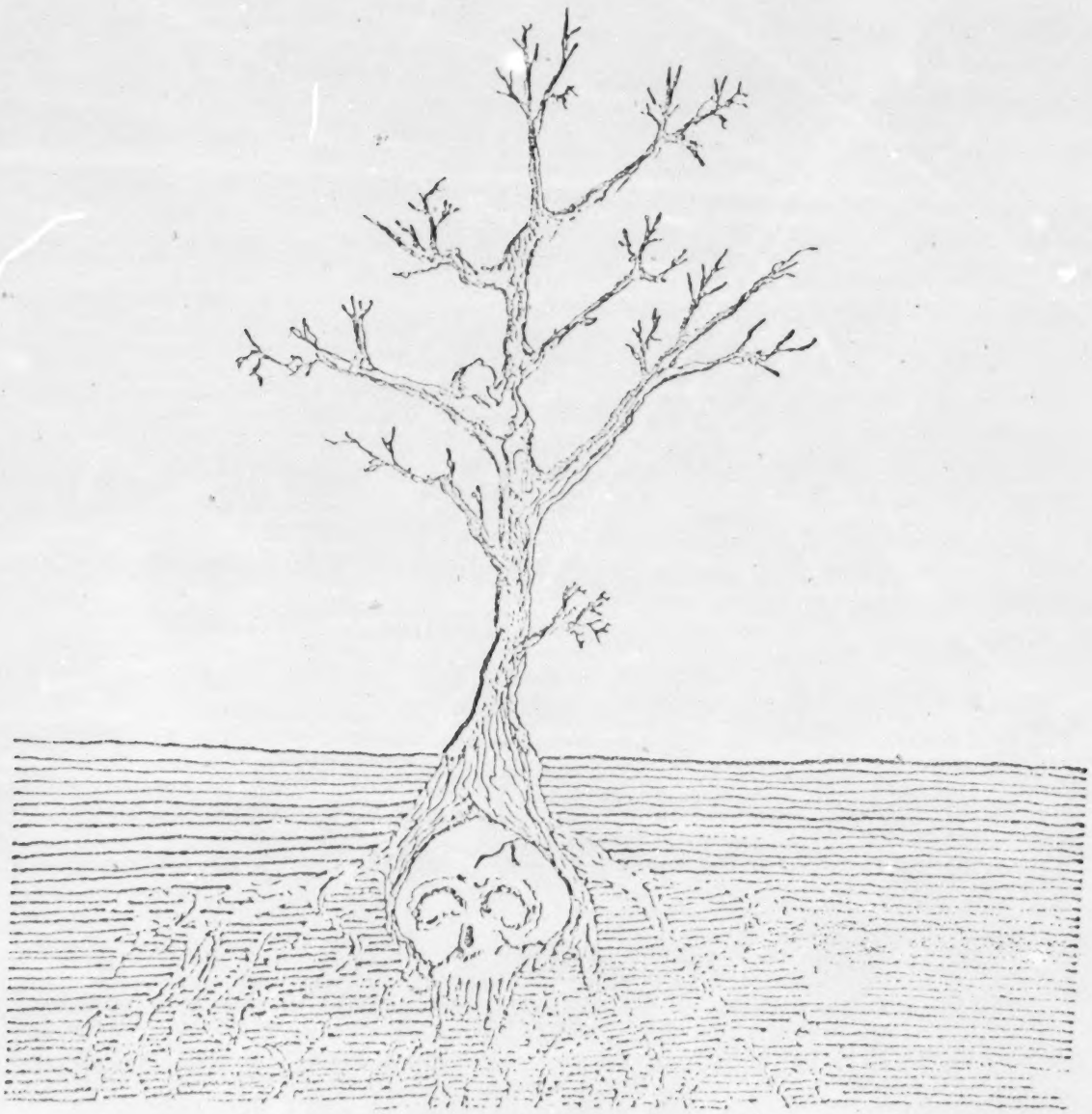
39. _____ DNA

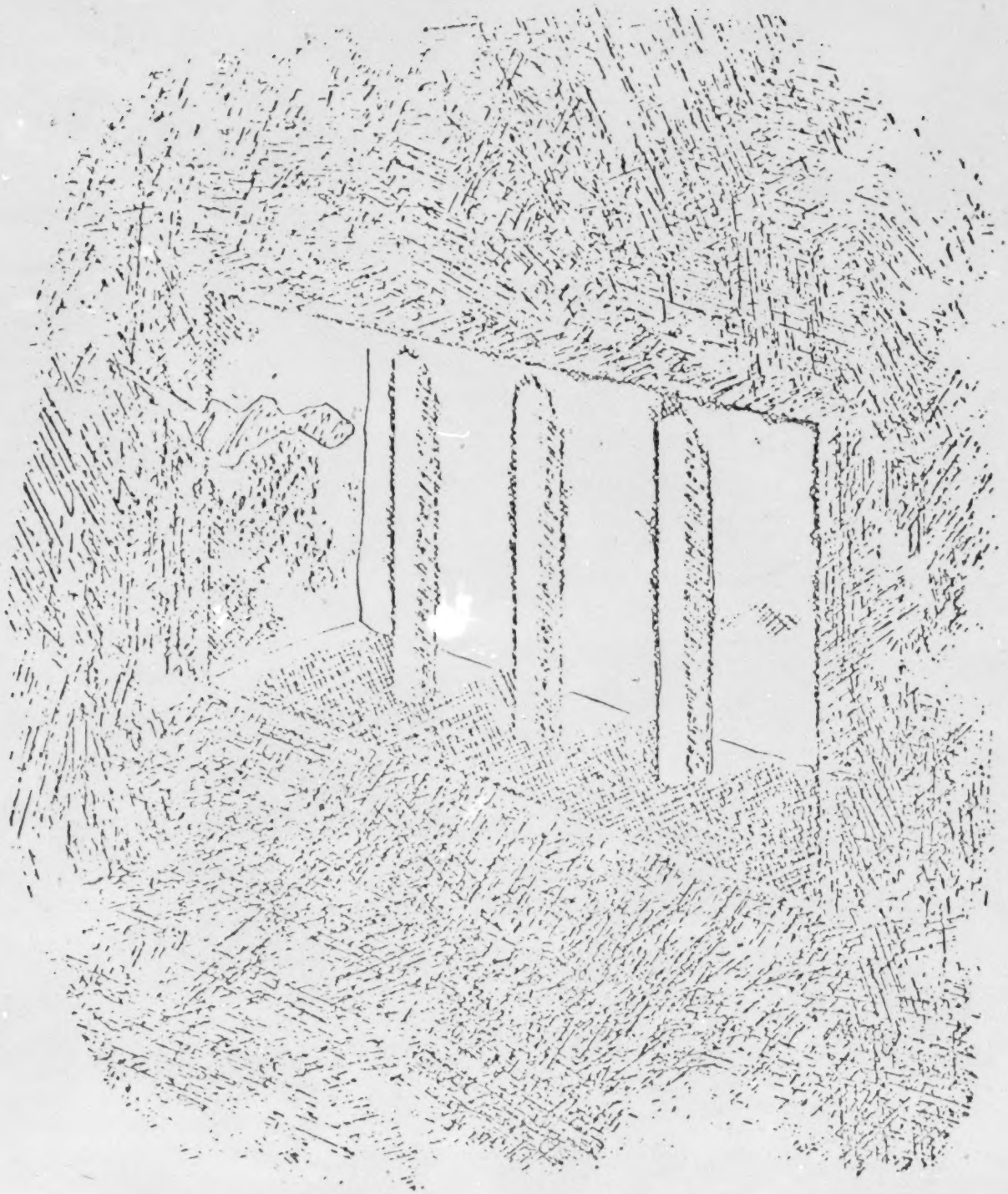
40. _____ The 1960 election was won by Kenedy by a margin of less than 1%.

06. Given an example of a springboard, the student will state in his own words a definition of this concept as it relates to inquiry teaching. The student will suggest two examples of springboards which might be used to teach an inquiry lesson in his subject matter area.

Examine the following two pictures. Could you use either as a springboard for a lesson? Explain and defend your answer (orally or in written form at the decretion of the instructor). Think about the following questions?

1. What are springboards used for?
2. What kinds of things might serve as springboards in my subject matter area?
3. Are there any kinds of springboards which couldn't be be utilized within my subject matter area? Why?





06. (continued)

1. What is a springboard?

2. How might either of the above photos be used as a springboard?

3. Describe or include examples of two springboards from your subject matter area which could be used as vehicles for inquiry learning.

07. Given a list of possible topics for inquiry in various subject matter fields, the student will select one (or develop one of his own liking) and identify and discuss at least <u>five</u> materials, activities or media selections that could be employed as springboard for student inquiry. (This may be developed as a classroom activity within the methods sections.)

Select one of the following topics or develop a similar choice more to your liking: ecology, environment, revolution, science fiction, inertia, mitosis, subsets of a set, factoring a number in prime factor form.

1.

2.

3.

4.

5.

08. Given a list of topics chosen from various subject matter fields, the student will select one topic and locate <u>two</u> different data sources which he will plan to utilize in teaching an inquiry lesson on the topic. The student will be able to describe how that data would be utilized (by students) in the lesson. Data sources will be judged according to their accessibility, appropriateness to ability level and motivational potential.

Select one of the following topics or develop a similar choice more to your liking: ecology, environment, revolution, imagery, figures of speech, the hero in literature, heredity, subsets of a set, factoring a number in prime factor form.

1.

2.

09. Given a list of instructional questions, the pre-service teacher will be be able to classify the questions according to the following kinds of cognitive processing they require of the student: cognitive-memory, convergent thinking, divergent thinking, evaluative thinking and value clarification (affective thinking). Use the following symbols in the blank preceding each item: M = Cognitive -memory, CT = Convergent Thinking, DT = Divergent Thinking, ET = Evaluative Thinking and V = Value Clarification.

_____ 1. What is the earth's distance from the sun?

_____ 2. What is the correct form for a business letter?

_____ 3. X and Y can do a piece of work together in fifteen days. They work together for six days, then X quits and Y finishes the work in thirty more days. In how many days could Y have done the work alone?

_____ 4. What is the difference between communism and socialism?

_____ 5. Where do you suppose you first got that idea?

_____ 6. Should we consider John Brown a fool or a hero?

_____ 7. What kinds of feelings does this music stimulate in you?

_____ 8. What evidence does the process of diffusion contribute to molecular theory?

_____ 9. What do you think would happen if bussing were halted in the racially troubled inner-city schools?

_____ 10. Match the correct statement letter with the corresponding principle number for each of the following:

a. $a+b = b+a$	1. Associative law for addition
b. $(a \times b) \times c = a \times (b \times c)$	2. Associative law for multiplicatio
c. $a \times 0=0$	3. Commutative law for addition
d. $a \times b= b \times a$	4. Commutative Law for multiplicatio
e. $a \times (b + c) = a \times b + a \times c$	5. Distributive law for multiplicati
f. $a + (b + c)= (a + b) + c$	6. Identity element for addition
g. $a \times 1 = a \times 2/2 = 2a/2$	7. Identity element for multiplicati
h. $a+ 0 = a$	8. Property of zero in multiplicatio

_____ 11. Sum up in one sentence what you think Sinclair Lewis was trying to say in Arrowsmith.

_____ 12. If John Kennedy had not been assinated what possible course of action might he have pursued with respect to Viet Nam?

_____ 13. Which, if any, of the following worry you more than the others?

1. Converting the Everglades into housing for senior citizens.
2. Bulldozing a mountain so a four lane highway can go by.
3. The cities spreading out over the earth's surface, leaving less and less open space.

_____ 14. In your opinion what makes "The Nike of Samothace" a great piece of art?

03. (continued)

_____ 15. Would you have supported Jefferson or Adams in the Election of 1800? Why?

_____ 16. If you wanted to produce a photograph to illustrate how you feel today, what kind of photograph would you make?

_____ 17. We have been studying statistics--the mathematics of chance and probability and urban changes and population migrations for five weeks. What role(s) does statistics play in trying to understand and predict urban changes and populations?

_____ 18. In making a speech what three things should we remember?

_____ 19. How are Bolivia and Paraguay similar geographically?

_____ 20. Could the "kibbutzim" be used in the United States to solve any of our pressing social and economic problems? Explain your reasoning.

_____ 21. How did the Crusades affect the development of western European commerce?

_____ 22. Mr. Jones is going to locate a new steel plant in the state. Suggest three possible locations where he will be able to produce steel economical

_____ 23. According to your understanding of "energy source energy sink", why is this common statement inaccurate: "Close the door, you're letting in the cold!"

_____ 24. What happens if we multiply both sides of the equation by constant X?

_____ 25. If Peter the Great, Napoleon, Henry VIII, or Abraham Lincoln were brought back to life today, who would be most surprised at the conditions in his country? Explain your reasoning?

_____ 26. In Moby Dick what symbolism is usuallly associated with the ship?

_____ 27. On the board is a geometry problem. What different ways might be use to prove that Angle AOB = AOF?

_____ 28. How many countries share the Alps?

_____ 29. If you were going to select a poem to go with this picture, what would it be? Explain.

_____ 30. How does a frog develop?

_____ 31. What does paper need from the air in order to burn?

_____ 32. What are the implications of the Bible for present day life and problems?

_____ 33. How do you define a magnet operationally?

_____ 34. If you could create something what would it be?

_____ 35. Should we consider John Brown a fool or a hero?

O10. Given one or more questions which stimulate a specified mode of thinking, the pre-service teacher will be able to rewrite a similar or related question using the other modes of thinking.

For each of the questions listed below try to generate a similar question in the same general content area which generate thinking at a different cognitive level.

1. What is the difference between communism and socialism?

   Memory

   Divergent

   Value Clarification

2. What is the earth's distance from the sun?

   Convergent

   Divergent

   Evaluative

3. What is the key theme Hawthorne developed in The Scarlet Letter?

   Memory

   Divergent

   Evaluative

4. Could the "kibbutzim" be used in the United States to solve any of our pressing social and economic problems? Explain your reasoning.

   Memory

   Convergent

   Value Clarification

011. Given a list of poorly phrased questions, the preservice teacher will be able to classify the questions according to the dominant source of their faulty construction.

Following is a list of common errors in teacher questions. Identify the predominant source of phrasing error in each item. Identify the phrasing error by entering the letter preceding each type of error before each question in the blank provided.

A - Yes-No questions: Questions which may be answered with a simple "yes" or "no."
B - Ambiguous questions: Questions lacking in adequate criteria from which the pupil may generate a meaningful response.
C - "Spoon-feeding" questions: Questions which are leading and provide too much guidance.
D - Confusing questions: Questions which incorporate too many factors to consider at one time.
E - Multiple questions: Questions which are repetitious or ask several questions while attempting to ask one.
F - Chorus questions: Questions phrased in such a way as to encourage the class to respond en masse.
G - Fill-in questions: Questions which leave out a word in the question which the student must supply.
H - Whiplash questions: Questions which start out as declarative sentences and conclude as interrogative sentences.

_____ 1. What about the slope of the line?

_____ 2. Is Canada larger or smaller than the United States?

_____ 3. What did you like or dislike about our unit on writing the business letter?

_____ 4. The Greening of America is an example of a non-fiction book?

_____ 5. Tell us about blank verse.

_____ 6. If you were a Cuban, would you continue to live under Castro's domination without trying to escape?

_____ 7. Who was our greatest president and why didn't he run for another term ?

_____ 8. Discuss the history of the papacy from its inception to the present day, concentrating especially but not exclusively on its social, political, economic and religious aspects and its impact upon Europe, Asia, and Africa. Be concise, brief, and specific.

_____ 9. Propoganda is what?

_____ 10. _____ is a figure of speech used to suggest exaggeration.

011. (continued)

_____ 11. Was Adam really the first human being?

_____ 12. Discuss DNA.

_____ 13. When, where and why did the War for Independence begin?

_____ 14. What disadvantages other than slowness are there to shipping goods by canal and what kinds of transportation are now competing with railroads?

_____ 15. Three important laws of science are _____'s law, Boyle's law and Newton's law.

_____ 16. Did the Vikings actually discover the mainland of North America before Columbus' voyage in 1492?

_____ 17. _____ was a famous author popularized the tragedy in English drama.

_____ 18. Discuss the geography of South America and its effects on the cultural, historical and economical development of the continent.

_____ 19. The famous monk who was the father of genetics and a chief investigator of the reproduction of sweet peas was who?

_____ 20. The name of the process in which a cell multiplies by dividing is called what?

_____ 21. Folks, what is the longest word in the English language?

_____ 22. There is a red telephone on your desk. Start World War III. Report at length on it social-political effects, if any.

_____ 23. Would you recommend to a friend that he read Silas Marner?

_____ 24. What important scientific discover was made in 1709?

_____ 25. Who was the first English baby born in the new world, class?

_____ 26. How many elements are there on earth and which are the most difficult to obtain?

_____ 27. Would this lengthy sentence be improved if it were broken up into two shorter ones?

_____ 28. If a ball is set in motion and strikes an obstruction, if gravity were not a resisting factor, what would happen to the ball?

_____ 29. What are the theme, key characters, plot and author of Moby Dick, The Scarlet Letter, The Wings of a Dove and The Catcher in the Rye?

_____ 30. Compare the commutative, associative and distributive laws.

012. Given a list of poorly phrased questions, the preservice teacher will be able to rewrite the questions improving upon the phrasing in each case. In addition, the student will be required to identify the nature of the error in each case.

1. What about the Articles of Confederation?

   Type of Error:

   Revised question:

2. Discuss the history of the papacy from its inception to the present day, concentrating especially but not exclusively on its social, political, economic and religious aspects and its impact upon Europe, Asia and Africa. Be concise, brief and specific.

   Type of Error:

   Revised Question:

3. How many elements are there on earth and which are the most difficult to obtain?

   Type of Error:

   Revised Question:

4. The name of the process in which a cell multiplies by dividing is called what?

   Type of Error:

   Revised Question:

5. The Greening of America is an example of a non-fiction book?

   Type of Error:

   Revised Question:

6. Tell us about blank verse.

   Type of Error:

   Revised Question:

7. What about the slope of a line?

   Type of Error:
   Revised Question:

013. Given a topic of his choice and any learning material(s) which he selects from which to teach a brief lesson to secondary students, the preservice teacher will be able to develop a list of at least 12 questions which he would ask to develop the topic or concept. Each of the following categories of thinking are expected to be represented in the list of questions: cognitive-memory, convergent thinking, divergent thinking, evaluative thinking and valuing or affective thinking.

TOPIC:

Performance Objectives:

Key Concept(s)

Materials:

Questions to be asked:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

014. Given selected readings and class discussion, the preservice teacher will be able to list and briefly explain eight (8) different uses of questioning strategies in the classroom. At least seven uses must be identified to meet an acceptable performance level.

1.

2.

3.

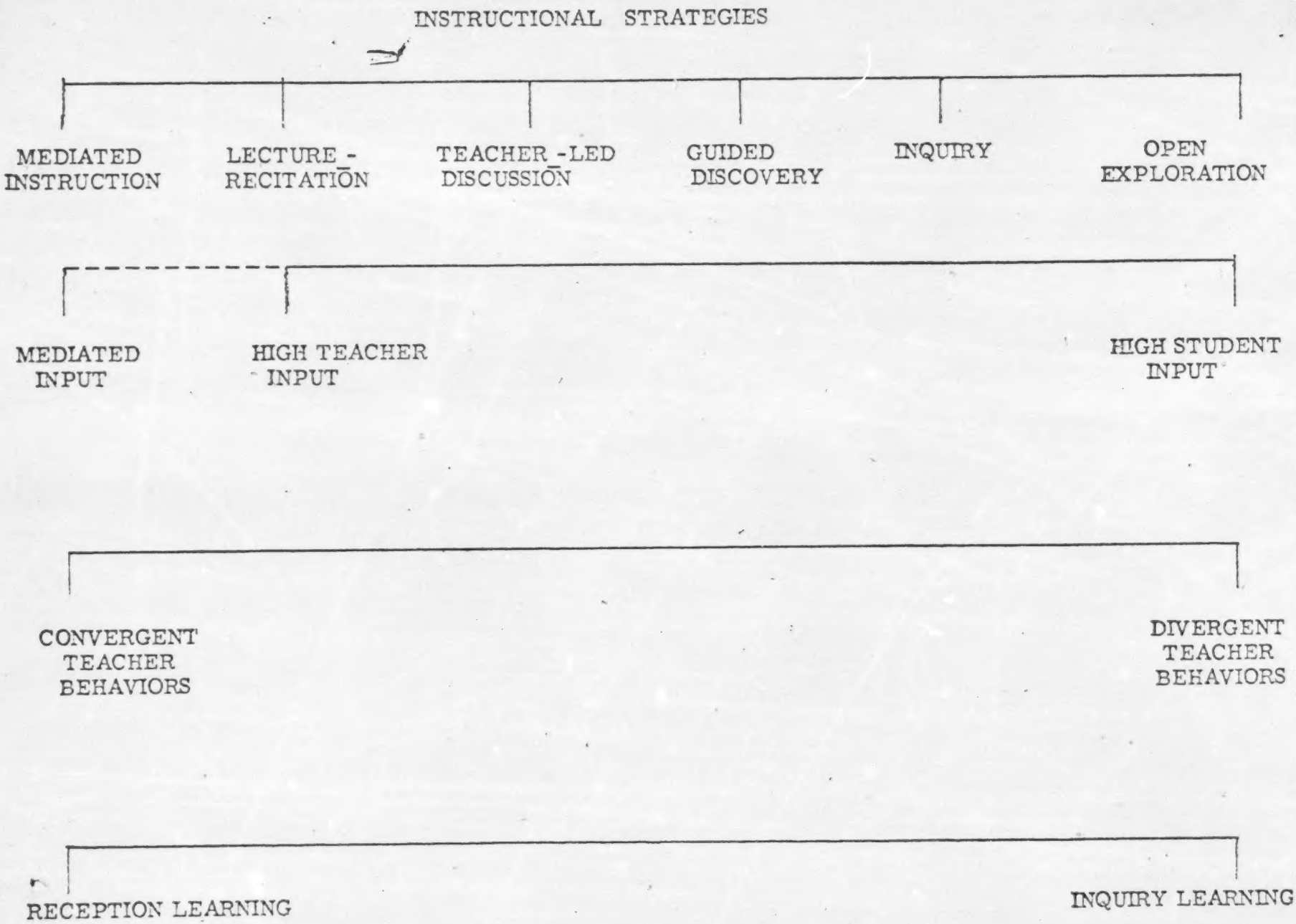
4.

5.

6.

7.

8.


INSTRUCTIONAL STRATEGIES
MEDIATED INSTRUCTION
LECTURE - RECITATION
TEACHER -LED DISCUSSION
GUIDED DISCOVERY
INQUIRY
OPEN EXPLORATION
MEDIATED INPUT
HIGH TEACHER INPUT
HIGH STUDENT INPUT
CONVERGENT TEACHER BEHAVIORS
DIVERGENT TEACHER BEHAVIORS
RECEPTION LEARNING
INQUIRY LEARNING

Learning Activities

Learning Activity I: Overview of Classroom Learning and Instruction

Objectives: O_1 O_2 O_3 + Terminal Objective

Treatment:

1. Read "Two Views of Classroom Learning" and "The Role of the Teacher in Classroom Interaction" in The Instruction by Bryce Hudgins. (See your instructor for a reserve copy of this reading.)

   02

2. Form a group of your classmates and discuss the following questions:
   a. How does a teacher know when to use inquiry teaching?
   01 b. Under what circumstances is a teacher wise to select a reception learning strategy?
   03 c. What kinds of instructional behaviors might one expect to see in a classroom which "individualized instruction"?
   d. What kinds of objectives can I help students obtain as I use the following strategies: mediated instruction, lecture, recitation, guided-discussion, inquiry-discovery?

01, 03 3. Watch classroom demonstrations and participate in small group discussions.

TPO 01, 03 4. Contact your instructor to arrange a time to complete a mini-lesson with peers.

TPO 5. Read: Encounters with Teaching by T.B. Gregory (Prentice-Hall, 1972). (See your instructor to borrow a copy.)

02, 03 6. Discuss the following questions with your classmates and methods instructors:

These questions are to guide your reading or to facilitate group discussion. They need not be formally answered and submitted to the instructor.

a. What is meant by "reception learning"?
b. What is meant by "discovery-inquiry learning"?
c. What kinds of learning activities might be expected to accompany each of the above types of learning? What would students and teachers be doing in each case?
d. Optional Activity: Select a unit of content in your subject matter field (such as a chapter from a recent popular textbook) and identify at least one specific example of the learning tasks which you might assign if your goal were to develop a "reception learning" environment. If your goal were to establish an "inquiry-discovery" learning environment?
e. What are the key assumptions upon which "reception learning" is based?

f. What are the key assumptions upon which "discovery-inquiry" learning is based?
g. Which of these learning styles appears most compatible with the traditional instructional goals usually associated with your subject matter speciality? Why?
h. In recent years discovery-inquiry learning has been strongly urged upon teachers in all subject matter fields. Why do you believe this has been the case? Can you see any important limitations associated with teaching toward "discovery-inquiry? learning?
i. Do you see any possible relationship between the two general views of classroom learning? Is there any way in which the enterprising teacher may utilize both styles to pursue a single objective? Explain.

7. Listen to a classroom lecture and follow-up discussion introducing the "Instructional Strategies Continuum. (01, 02)

8. Watch and participate with your instructor in teaching and analyzing two fifteen minute mini-lessons in which he uses two different instructional strategies to teach the same concept. (01, 03)

9. Discuss in a small group the following questions (01, 02, 03)
a. Refering to the "Instructional Strategies Continuum," which strategies did the instructor employ?
b. Which behaviors did he exhibit in each case? (Use Flanders' terminology).
c. What kinds of objectives were met in each situation?
d. What limitations were imposed in each case by the choice of instructional strategy?

10. Participate with the group and your instructor in "An Experiment in Communication." Discuss as a large group the implications for teaching. (This sequence should be videotaped.) (01, 03)

11. Use Flanders' System of Interaction Analysis or another observational system to code your instructor's behaviors during the follow up discussion for item 10. (01, 03)
a. What behaviors did he exhibit?
b. Did he actually guide the discussion? How could you tell?
c. How did students react to his intervention?
d. What advantages and limitations do you see of "guided discussion" as an instructional strategy?

12. Select a concept from your teaching area and write one performance objective and describe one classroom activity which could be used to teach the concept for each of the following instructional strategies: lecture recitation, guided discussion and inquiry. (03)

CL: 1-2
LM: 1-2-3
IM: 1-2
Situation: Classroom; Individual and Group Setting
Time: 4 hours

Learning Activity 2: Teaching Toward Inquiry Objectives 04, 05, 06, 07, 08

Treatment: TPO

1. Peer Group Micro-teaching. In groups of 6-8 you will "teach" a 10 minute "inquiry" lesson utilizing whatever criteria each student believes necessary. Following completion of all lessons each group will identify common attributes of their defined inquiry criteria. Class will pool all definitions for future reference.

01

2. Definitions from above will be applied to the Instructional strategies continuum as defined in Learning Activity I.

04

3. Instructors will provide 4 inquiry demonstration lessons in Math, Science, English, and Social Studies, each representing the conceptual attributes of inquiry models found in required readings. (Video tape or film episodes may be substituted.)

   Discussion in small groups (4-7) will follow demonstrations with each group responsible for producing common instructional behaviors. Class will pool results forming a behavioral inquiry model.

TPO

4. Peer Group Micro-teaching. In groups of 6-8 each student will teach a 10-15 minute inquiry lesson utilizing criteria developed by class in activity 3.

TPO

5. Contact a classroom teacher who will permit you to teach a group of students an inquiry lesson as defined in class above. You must audio-tape your lesson and provide a Flanders' analysis supporting your contention that your instructional behavior conforms to the criteria for inquiry teaching.

Materials which are applicable to all subject matter disciplines and the development of inquiry processes are difficult to locate. While most disciplines urge the "inquiry" strategy upon their practitioners, social studies, and science appear to be the two disciplines in which most of the research and writing about the development of inquiry processes have occurred. As a result, most of the materials cited in this section of the module may refer to examples in either of these fields rather than in language arts or mathematics. Students who experience difficulty in recognizing how this relates to their particular fields should challenge the instructor to explain.

Suggested materials and activities:

1. Strasser, BB et. al. Teaching Toward Inquiry. Washington, D. C. National Education Association, 1971.

01
06
04

This book is one of the very few texts devoted to this topic which is not related to a particular subject matter discipline. This book is good especially in defining the student and teacher roles associated with inquiry teaching and learning. It also presents a nice contrast between inquiry teaching and two other modes of instruction.

2. Massialas, B.G., and Zeven, J. Creative Encounters in the Classroom. New York: John Wiley and Sons, 1967. Chapters 1 & 5.

This is another text which treats inquiry without reflecting an entirely social studies bias. This is somewhat surprising since
04 both of the authors are prolific writers in that area. Chapter One "The Process and Context of Inquiry" should prove especially helpful to the non-social science methods student.

Another benefit of this book is that inquiry is related to several classic views of thinking, i.e., Dewey, Guilford, Russel. Inquiry is not viewed entirely as a collection of cognitive skills or processes being developed in isolation. In this chapter they are related to values and creative thinking.

3. Massialas, B.G. and Zevin, J. "Inquiry." Today's Education (May 1969) 40-44.

01 This article would primarily interest social studies majors. The
03 authors discuss the role of a teacher in an inquiry lesson and
08 give an example of an inquiry lesson which any social studies teacher could present to try his hand at inquiry.

4. Massialas, B.G. and Cox, C.B. Inquiry in Social Studies. New
04 York: McGraw-Hill, 1966. pp. 115-121.

This section presents and discusses "The Reflective Model"--one method of viewing conceptually the inquiry process.

5. Dewey, John. How We Think: A Statement of the Relation of Reflective Thinking to the Educative Process. Boston: D.C. Heath, 1933.

04 This paper summarizes Dewey's discussion of the five phases of thinking. It is an example of another conceptual model of the inquiry process.

6. Tanck, M.L. "Teaching Concepts, Generalizations and Constructs," in Social Studies Curriculum Development: Problems and Prospects, edited by D.M. Fraser. Washington, D.C.: National Council for
05 the Social Studies, 1970.

This reading would be helpful to someone experiencing difficulty in meeting objective EO 3.4. The treatment of social studies in this chapter is rather minimal.

7. Other selected books which may help:

03, 07 a. Beyer, Barry K. Inquiry in the Social Studies Classroom. Columbus: Charles E. Merrill, 1971.

05 b. Mallan, J.T. and Hersh, R.H. No G.O.D.s in the Classroom: Inquiry into Inquiry. Philadelphia: E.B. Saunders, 1972.

06,07,08 c. Mallan, J.T. and Hersh, R.H. No G.O.D.s in the Classroom: Inquiry and Elementary Social Studies. Philadephia: W.B. Saunders, 1972.

8. Handouts:

1. An Inquiry Lesson: "A Ghost Town"
2. "Springboard, Motivators and Vehicles"

CL: 1-2-3
LM: 1-2-3
IM: 1-2-3
Situation: Classroom, School and Independent
Time: 24 hours

Learning Activity 3: Acquisitioning of Questioning Skills

Objectives: 09, 010, 011, 012, 013, 014

Treatment:

During this unit developed to improve your questioning skills the student has been assigned a major responsibility for identifying the kinds of learning experiences he believes to be most productive to enable him to reach the criterion performance level on the stated objectives. While the package is designed to be self-instructional so that a student might be able to develop the expected competencies outside regular classroom instruction as he uses the suggested resources, it is not intended that this must be an independent learning experience. In addition to the reading materials suggested in the package, the student will also notice audio (casette) tapes, a filmstrip, and movies or videotapes for his use. These learning materials may be used independently or among a small group of students. Beyond this the student has two additional resources at his disposal to assist him in developing the expected competencies. First of all, the student may see his instructor individually for assistance with a particular learning problem. A second possibility is provided by specially scheduled classroom activities. This time will be reserved for group-oriented learning opportunities. The following kinds of opportunities will be developed during scheduled class time:

1. Group discussions on the possible uses of teacher questions.

2. Observation, coding and analysis of teacher questioning behaviors in demonstration lessons recorded on typescripts, movies, videotapes and microlessons.

3. Laboratory work in writing more effective questions for classroom use evaluation.

4. "Questioneze," (a simulation game).

5. Microlessons with peer groups.

A separate schedule of times, room assignments and specific activities will be distributed each time this module is used.

After the student has decided that he is able to meet the expected competency identified in any objective, he is encouraged to submit his posttest for instructor evaluation and feedback.

The Importance of Questioning Skill As a Professional Competency.

TPO 014 A. Reading #5 - "Why is questioning so vital?" - discuss the importance and uses of questioning behavior. Relates questioning to thinking and introduces Bloom's cognitive hierarchy and its relationship to the Development of questions which stimulate high level cognition in the student. Useful little chapter.

B. Audiotape lecture #2 - "The importance and Uses of Questions as an instructional tool" - Oral presentation of key ideas in Reading #5; does not emphasize Bloom's hierarchy.

C. Reading #6 - pages 83-86. Brief overview and introduction to the importance of questioning.

D. Class lecture-discussion on the importance of questioning.

Uses of Questioning Skills.

TPO A. Audiotape lecture #3 - "Systematic Use of Questions" - Oral presentation of the importance of systematically planning questions in order to reach a cognitive objective.

013 B. Reading #3. - "The Systematic Use of Questions in Teaching-Learning" - Useful reading which explains how one plans for questioning to stimulate thinking by using Bloom's cognitive hierarchy. A good explanation of the differences between questions found at each cognitive level. Good short reading which may help one to develop questions at each cognitive level.

B.1 Study Guide Questions to accompany Reading #3. In the appendix of learning package.

C. Lecture and discussion about uses of questioning in the classroom.

Classifying Questions According to Type.

TPO A. Reading #6 - "Developing Question-asking Skills" - pages 85-106. Excellent reading which introduces Guilford's model for categorizing questions. Includes useful explanations, examples and several check up tests.

09

B. Reading #7 - Classroom Questions - Book which discusses Bloom's model for categorizing and writing questions. Has a separate chapter for each cognitive level. Good examples. For the interested student who wishes to look at this behavior in a more comprehensive treatment.

C. Reading #2 - "How to Ask Questions" - Suggests how questions may
010 be classified according to several systems. Brief, superficial.

D. Reading #8 - "The Question: What to Ask: - Excellent little reading which suggests that the practical categories used by Smith and Meux in the book, A Study of the Logic of Teaching, be used to classify questions. Interesting reading - may be more intuitive for student than Bloom's categories.

E. Reading #11 - "Levels of Questioning" - An excellent programmed treatment of writing questions at different levels. This would be especially useful to the student who is experiencing difficulty with other materials and is in need of remedial help.

G. Class - A lab period in which students practice analyzing the "suggested" questions in various social studies curricular materials. Students will have opportunities to use and interpret the various systems which have proven effective in categorizing questions.

H. Practice your ability to recognize types of questions using typescripts, audiotapes of lessons and films of lessons. Try using both Bloom's categories and those of Guilford with each of these media forms:

Typescript 12
Typescript 11
Typescript 8
Typescript 7
Audiotape lesson 6
Audiotape lesson 5

These audiotapes should be recorded locally and supplied by your instructor.

Films: See your instructor to obtain access to films of classrooms. Compare your evidence with the general paragraph summaries of the questioning exhibited in the films and audiotapes. Coded (Bloom) copies of typescripts will be on file in CMC.

Effective Questioning Behaviors

TPO 011 012 A. Reading #1 - "The Art of Questioning" - Practical explanation of appropriate behavior in question. Good treatment of the characteristics of proper questioning and effective question forms. (pages 38-45)

A.1 Study guide questions to accompany use of reading #1 - appendix to learning package.

B. Reading #10 - "120 Questions About Your Questioning Technique" - Suggested for study to gain insights by implication of desirable questioning form.

C. Reading #2 - "How to Ask Questions" - (pages 4-6)- A good, short explanation of guidelines for good questioning.

D. Filmstrip #1 - "Asking Questions" - Good overview of questioning behavior and how to use questions to best advantage.

E. Class - Analysis of questioning using a live demonstration or a movie or a videotape.

Pitfalls of Questioning.

TPO A. Reading #6 - "Developing Question-asking Skills" - (pages 107-119) Stresses phrasing errors and includes numerous examples
011 and check-up self tests.

012 B. Reading #1 - "The Art of Questioning" - (pages 45-52) - Good, short explanation of some of the most common pitfalls in questioning behavior.

B.1 Handout to accompany reading #1 - appendix.

C. Reading #2 - "How to Ask Questions" - (pages 6-7)

C.1 Handout to accompany reading #2 - appendix.

D. Reading #9 - "Questioning" - Rather superficial discussion, but does make several suggestions for practices to avoid.

E. Audiotape lecture #4 - "Pitfalls of improper questioning" - Oral synthesis of readings in this area.

F. Class - A laboratory session in improving poorly written questions.

Strategies for Question-asking

TPO A. Reading #6 - "Developing Question-asking Skills" - Excellent presentation and discussion of appropriate strategies for improving the power of your questions. Good examples - useful check-up self tests.

B. Reading #10 - "120 Questions About Your Questioning Technique" - If you haven't read this earlier, it is useful as a tool to suggest how your questions should be used.

C. Class - time - "Questioneze" and/or microlessons with peer groups.

D. Class discussion on the uses of questioning behavior within the key modes of instruction.

Developing Questions

TPO A. Reading #4 - "How to Write Questions in the Cognitive Domain - How to Write Questions in the Affective Domain" - This may be a useful reading to help polish your ability to recognize and
013 develop questions according to Bloom's levels of cognition. Suggest that this be skimmed.

B. Select a social studies concept and see if you can develop a good question at each level of cognition in the hierarchy and for each mode of Guilford's model. Exchange these with another student and critique one another's efforts. Have your instructor provide feedback if a fellow student is unavailable.

C. Organize a group of fellow students and teach a mini-lesson for a particular concept. Use questions almost exclusively. Record an audiotape. Discuss the use and nature of your questions within the group. (See your instructor to arrange for a tape recorder.)

D. Class discussion and demonstration of using questions for value clarification.

CL 1-2-3
LM 2-3-4
IM 1-2
Situation: Independent study, groupwork tutoring.
Time: 24 hours

STUDY GUIDE QUESTIONS AND SUGGESTED ACTIVITIES

Reading #1

"The Art of Questioning," - A chapter from Handbook for Social Studies Teaching, prepared by the Association of Teachers of Social Studies of the City of New York. New York: Holt, Rinehart & Winston, pp. 38-57.

1. Read pages 38-44. "Characteristics of Good Questioning"

   a. Write a short paragraph on the nature of questions.

   b. What are some of the important mechanics involved in proper questioning?

   c. List and describe using examples five characteristics of good questioning technique.

2. Read pages 43-45. "Effective Question Forms"

   a. Develop three questions in each of the forms suggested by the author. Compare yours with those created by another student or check with your instructor.

3. Read pages 45-48. "Pitfalls of Questioning"

   a. What do you see as the most common pitfalls of questioning?

   b. Which errors do you believe you are likely to be most guilty of in your own teaching.

   c. If you had trouble with the pretest for objective C, re-examine the questions provided. If you still are unable to understand the error of a particular question, check with the instructor.

4. Read 48-51. This is appropriate for general background in developing questioning ability.

5. See the exhibits of questions developed for different areas of social studies on pages 52-64. While these are questions most appropriate to the secondary level, many are fine examples of carefully constructed and useful questions.

STUDY GUIDE QUESTIONS AND SUGGESTED ACTIVITIES

Reading #2

J. C. Morgan and J. E. Schreider, "How to Ask Questions," How To Do It Series, #24, National Council for the Social Studies, 1969.

This article is useful as a background for asking questions at different cognitive levels and for obtaining guidelines for good questions.

1. What are eight different types of questions suggested by the authors?

2. Try your hand at developing several examples of each type of question and have another student react to your trial effort.

3. Select several questions from the list on pages 52-68 of Reading #1 and see if you can readily recognize what makes each a good question.

4. Using the explanation of the cognitive levels identified by the authors, select several other questions from the list in Reading #1 and see if you can easily determine the cognitive level required by the question. If you experience difficulty doing this, refer to the Reading #3 and/or Reading #4.

STUDY GUIDE QUESTIONS AND SUGGESTED ACTIVITIES

Reading #3

"The Systematic Use of Questions in Teaching-learning," in Evolving Instruction, by E. E. Haddan. New York: Macmillan, 1970.

1. How do questions and a student's thinking relate to one another?

2. Define each of Bloom's categories in your own words so that each category is distinct from the others.

3. Most questions occur at low cognitive levels. Explain at least three weaknesses or limitations of this practice.

4. What kinds of things may a question aimed at the interpretive level require a student to do? Cite at least three.

5. The following question has been developed by one student as an example of an analysis question. Examine it and write a short paragraph explaining why you agree or disagree with his opinion.

"Which step in the process of electing a President, would you believe the American people know least about?"

6. In an elementary classroom what possible weaknesses may be associated with synthesis and evaluation questions?

LIST OF MEDIA AND ACTIVITIES SELECTED
for "The Acquisition of Questioning Skills"

	Time Spent
Reading #1	_____
Reading #2	_____
Reading #3	_____
Reading #4	_____
Reading #5	_____
Reading #6	_____
Reading #7	_____
Reading #8	_____
Reading #9	_____
Reading #10	_____
Reading #11	_____
Reading #12	_____
Filmstrip #1	_____
Audiotape Lecture #2	_____
Audiotape Lecture #3	_____
Audiotape Lecture #4	_____
Audiotape Lesson #5	_____
Audiotape Lesson #6	_____
Typescript #7	_____
Typescript #8	_____
Typescript #11	_____
Typescript #12	_____